Remarks

This is in response to the Office Action mailed on May 20, 2003. Claims 1-20 remain pending. Reconsideration and allowance of all claims are respectfully requested in view of the following remarks.

In section 2 of the Office Action, claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fierro et al., U.S. Patent No. 5,705,979, in view of Peltier et al., U.S. Patent No. 5,708,414. This rejection is respectfully traversed.

Claim 1 is directed to a method of communicating multiple hazardous condition alarms between distributed hazardous condition detectors over a single signal line. Claim 1 recites steps of sensing a first hazardous condition, and generating an alarm signal on the single signal line, the alarm signal including a voltage pulse having a duration less than 100 milliseconds.

As previously noted, it is advantageous to configure the alarm signal to include a voltage pulse having a duration less than 100 milliseconds so that an alarm signal from, for example, a carbon monoxide detector will not trigger an alarm condition in a conventional smoke alarm, but will trigger an alarm condition in intelligent smoke alarms that can issue a carbon monoxide alarm pattern. See, for example, page 11, line 6 - page 13, line 23 of the present application.

Fierro discloses a smoke detector and alarm panel interface unit. The correctness of the rejection's characterization of Fierro is not conceded. However, the rejection notes that Fierro fails to disclose an alarm signal including a voltage pulse having a duration less than 100 milliseconds, as recited in claim 1.

The rejection cites column 11, lines 48-60 of Peltier as disclosing at least one voltage pulse having a duration of less than 100 milliseconds. This characterization of Peltier is respectfully traversed.

Peltier discloses a fault indication technique implemented in a smoke detector. More specifically, Peltier discloses a waveform 370 that includes pulses 374a and 374b to indicate a fault condition at the smoke detector. Peltier, column 11, lines 48-64. Therefore, Peltier fails to even suggest generation of an alarm signal including a voltage pulse as recited by claim 1. The waveform 370 of Peltier is used to indicate a fault condition at the smoke detector (e.g., indication of under-sensitivity or over-sensitivity to the ambient smoke obscuration level, abstract, lines 7-11), not to provide an alarm signal, as recited by claim 1.

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Peltier does disclose that the duration of each of the fault condition pulses 374a and 374b is approximately 100 milliseconds. Peltier, column 11, lines 55-60. However, Peltier describes the motivation for configuring duration of the pulses at approximately 100 milliseconds to be minimization of the possibility that multiple offset fault condition pulses from multiple smoke detectors overlap to create a pulse with a duration of 1.5±0.3 seconds, which would produce a false alarm condition. Peltier, column 11, line 65 - column 12, line 6. Peltier therefore actually teaches away from an alarm signal including a voltage pulse having a duration less than 100 milliseconds, as recited by claim 1. Instead, Peltier discloses tailoring a duration of a fault condition pulse to minimize false alarm conditions.

The above comments should not be construed as excluding the use of fault condition signals from the method as recited by claims 1-11. The comments merely illustrate that neither Fierro nor Peltier discloses or suggests a method of communicating multiple hazardous condition alarms including an alarm signal having a voltage pulse having a duration less than 100 milliseconds, as recited by claim 1. For at least these reasons, reconsideration and allowance of claim 1, as well as claims 2-11 that depend thereform, are respectfully requested.

Claim 12 is directed to a hazardous condition detector including a microcontroller. Claim 12 recites that the microcontroller determines a first alarm condition upon receipt of a pulsed input of less than approximately 100 milliseconds and a second alarm condition upon receipt of a DC signal. Claim 12 further recites that the microcontroller commands an alarm circuit to generate a first alarm type upon determining the first alarm condition, and to generate a second alarm type upon determining the second alarm condition.

As previously noted, a detector configured in this manner is advantageous so that the microcontroller can receive an alarm condition from other intelligent and conventional detectors and generate an appropriate alarm type depending on the type of alarm condition. See, for example, page 11, lines 6-28 of the present application.

The rejection characterizes Fierro as disclosing a microcontroller that determines a first alarm condition and a second alarm condition and generates a first alarm type and a second alarm type, citing column 3, lines 3-11 and 24-30 of Fierro. This characterization of Fierro is respectfully traversed.

Fierro does not disclose or suggest an alarm circuit to generate a first alarm type upon determining the first alarm condition, and to generate a second alarm type upon determining the

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second alarm condition, as recited by claim 12. Fierro does not suggest generating multiple alarm types.

In addition, similar to the remarks provided above with respect to claim 1, neither Fierro nor Peltier discloses a microcontroller that determines a first alarm condition upon receipt of a pulsed input of less than approximately 100 milliseconds, as recited in claim 12.

For at least these reasons, the combination of Fierro and Peltier fails to render claim 12, as well as claims 13-19 that depend thereform, obvious. Reconsideration and allowance are respectfully requested.

Claim 20 is directed to a distributed hazardous condition detection and alarm system. Claim 20 recites that the system includes first and second hazardous condition detectors, and a 3-wire interconnect coupling the first detector to the second detector. Claim 20 further recites that one of the detectors is operable to generate a multi-bit alarm message on the interconnect to indicate the detection of a first hazardous condition, and one of the detectors is operable to generate a constant DC level on the interconnect to indicate the detection of a second hazardous condition.

The rejection notes that Fierro fails to disclose a multi-bit alarm message.

The rejection cites Peltier as disclosing a multi-bit alarm message at column 8, lines 8-55. However, the 8-bit word disclosed by Peltier is used internally by the smoke detector to represent an integration time interval. Peltier, column 8, lines 9-27. Peltier fails to suggest configuring the detector to generate a multi-bit alarm message on an interconnect coupling the detector to another detector, as recited by claim 20. Instead, the 8-bit integration time interval disclosed by Peltier is used internally (i.e., not provided on an interconnect between detectors) and does not represent a multi-bit alarm message, as recited by claim 20.

Therefore, for at least the reasons stated above, claim 20 is allowable over the cited art. Reconsideration and allowance are respectfully requested.

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In view of the above remarks, claims 1-20 are in condition for allowance. Favorable reconsideration in the form of a Notice of Allowance is respectfully requested. The Examiner is encouraged to contact the undersigned attorney with any questions regarding this application.

Respectfully submitted,
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